CIVILIZATIONS OF THE WESTERN SUDAN

From the Atlantic to Lake Chad in the great grassland belt of the Sahel and dry savanna, the Western Sudan was home to remarkable cities, states, and alternative forms of complex society. Research has revealed cities without citadels and trading networks of great antiquity. The early history of complex society in the Western Sudan challenges our certainties that hierarchy and centralization were the drivers of social complexity, or that African cities and states drew their initial inspiration from Egypt or the Mediterranean.

The Search for Takrur

Archaeological Excavations and Reconnaissance along the Middle Senegal Valley

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NUMBER 93

Published by
the Yale University Department of Anthropology
and the Yale Peabody Museum of Natural History

Distributed by
Yale University Press
NEW HAVEN AND LONDON

Yale

(from unit 1-S level 25 Phase IB) were of ostrich, or perhaps merely indicate trade with more northerly groups. Other bird remains are probably accidental visitors. All the species identified, except the ostrich, occur in the Middle Senegal Valley region today.

Conclusions

Though Cubalel and Siwré display a striking similarity in their faunal assemblages, it is instructive to compare them with the fauna of the contemporary Iron Age site of Tulel-Fobo (fourth to tenth centuries AD), also in the Middle Senegal Valley (Van Neer and Bocoum 1991). Domestic cattle, sheep, goat, and dog were also present at Tulel-Fobo. Unlike at Cubalel and Siwré, the faunal assemblage of Tulel-Fobo is dominated by fish, particularly silurids (representing more than 50% of determinate bone weight). Conversely, reptiles are not very well represented at Tulel-Fobo, with no evidence of crocodile at all. The relative paucity of fish remains from Cubalel and Siwré, when compared with other comparable riverine sites such as Tulel-Fobo, Dia (MacDonald 1989; Manning and MacDonald 2005), and Jenne-jeno (MacDonald 1995; Van Neer 1995), is remarkable and seems to indicate some genuine difference in subsistence regime. In other words, for a population living along a major river, the people of Cubalel and Siwré do not look to have been very active fisherfolk, concentrating instead on raising domestic mammals and practicing cereal agriculture.

In summary, there is little evidence for change over time in either the Cubalel or Siwré assemblages. At Cubalel there is a slight trend indicating a reduction of local territorial antelope species by Phase IIIA, but it is impossible to confirm this at Siwré. Animal breeds, insofar as metric data can show, seem to undergo no change at Cubalel from initial occupation to abandonment at the end of Phase III. There is, however, some evidence for the introduction of a new cattle breed (perhaps humped cattle, *Bos indicus*) by Phase IV (around AD 900) at Siwré. Butchery practices show no apparent change over time, although ovicaprine herd structure (such as culling practice) seems to have altered at Cubalel between Phase II and Phase III. Cattle herding practices seem to indicate a conservative regime of trying to maximize herd size rather than meat and milk productivity. Hunting may have concentrated on locally numerous antelope, crocodiles, turtles, and wildfowl. There is no evidence for any faunal "exotics" except for camel, which is present at Siwré in Phase IB. Thus, overall, our faunal analysis supports the conclusions of S. K. McIntosh et al. (1992:57) that Cubalel and Siwré formed part of a small-scale food-producing society that underwent little change during the first millennium AD.

FISH REMAINS FROM CUBALEL AND SIWRÉ

Wim Van Neer

The fish bone assemblage from the Middle Senegal Valley Project contains just under 3,800 bones, 75% of which were identifiable. Identifications were carried out by comparison with the modern reference collection housed at the Royal Belgian Institute of Natural Sciences, Brussels. For each identifiable bone the skeletal element and taxon were noted by level or feature (Appendix G Tables G.5 through G.17). The bone finds, which were initially recorded by level and feature, have been grouped by ceramic phase for the individual mounds (Table 12.1).

Identifications

At least twenty-two different fish taxa have been identified (Figure 12.1). Three taxa constituted 75% or more of the fish assemblage in each excavation unit in every phase: Clariidae (airbreathing catfishes), *Synodontis* (sqeakers), and *Lates niloticus* (Nile perch). Clariids are typical inhabitants of shallow waters and occur in vast numbers on floodplains during the inundation. Adult *Synodontis* typically occur in open waters and are usually abundant on sites where open water fishing is also indicated by the presence of Nile perch (Van Neer 1994). They also migrate, however, into the floodplain during the inundations for reproduction. Smaller individuals (below 10 to 15 cm SL [standard length: distance from tip of snout to base of tail]) can be numerous in residual pools. Judging from their size, and because capturing adults in the inundated plain is difficult, most of the *Synodontis* samples at the Middle Senegal Valley sites seem to be individuals captured in the main channel. The Nile perch is very abundant at all mounds and certainly was one of the major food fishes at these sites. It attained sizes of up to 140 to 150 cm SL, but very small individuals were also occasionally encountered.

Nile perch are typical inhabitants of the main river and larger individuals occupy the deeper parts of the main channel. Spawning usually takes place in the main river and the larvae migrate onto the floodplain to undergo their first growing season. Occasionally adults venture into the flooded plain when water levels are at their highest. The maximum size of the first year's generation is 30 cm SL when they enter the main channel at the end of the floods. This means that all fish larger than 30 cm SL must have been captured in the main channel. A few specimens smaller than 30 cm SL were encountered in the excavated sites, indicating that they had been taken from the floodplain. We can conclude that the occupants of the Cubalel mounds exploited fish from both the main channel and the floodplain (Table 12.2).

TABLE 12.1. Fish remains found in the various mounds and grouped by ceramic phase within each excavation unit at the Cubalel and Siwré sites.

	Unit C-1		Unit C-2	Unit C-3A				Unit C-3B			
Taxon	II	IIIA	IIIA	I	II	IIIA	IIIB	I	II	IIIA	IIIB
Protopterus annectens	—	—	1	—	—	—	—	—	—	—	—
Polypterus sp.	—	7	1	—	1	—	2	—	—	2	3
Heterotis niloticus	2	5	11	—	3	—	2	1	1	2	2
Gymnarchus niloticus	—	1	1	—	1	2	—	3	3	1	3
Mormyridae	—	1	—	—	—	—	—	—	—	—	—
Cyprinidae (cf. *Barbus*)	—	2	—	—	—	—	—	—	—	—	—
Cyprinidae (cf. *Labeo*)	—	—	—	—	—	—	—	—	—	—	—
Citharinus sp.	1	5	4	—	3	—	—	—	—	1	1
Distichodus sp.	—	2	—	—	1	—	—	—	—	—	—
Citharinus/Distichodus	—	13	—	—	2	—	2	—	1	—	4
Hydrocynus sp.	1	—	2	—	—	—	—	—	—	2	—
Alestes/Brycinus	—	—	—	—	1	—	—	—	—	—	—
Bagrus sp.	4	7	3	—	10	1	2	1	3	4	5
Clarotes laticeps	1	—	1	—	—	1	—	2	1	—	1
Chrysichthys sp.	—	—	1	—	—	—	—	—	—	—	—
Auchenoglanis sp.	3	3	17	1	7	1	5	—	4	—	8
Synodontis sp.	8	56	57	—	11	2	10	2	3	5	14
Clariidae	219	251	90	4	118	27	54	8	75	93	125
Tilapiini	3	39	22	—	4	7	3	1	2	3	12
Lates niloticus	22	53	38	3	60	4	22	5	36	11	48
Parachanna sp.	—	—	—	—	—	—	—	—	—	1	—
Tetraodon lineatus	—	—	1	—	1	—	1	—	—	—	—
Total identified fish	264	445	250	8	223	45	103	23	129	125	226
Total unidentified fish	51	183	161	1	68	8	51	—	36	24	47

Continued

Fishing Techniques

A good description of modern traditional fishing methods in sub-Saharan Africa is found in Blache and Miton (1962) and Brandt (1984). These techniques include simple methods such as the capture by hand of fish in shallow waters, or the use of sticks or other wounding and striking gear in marginal waters during the spawning season or in drying pools. Fish can also be captured by a system of barriers and traps placed in channels, through which the lateral migration toward the floodplain takes place at the beginning of the floods. The same activities can occur when fish return to the main river.

In shallow residual pools and ponds groups of people can use a variety of fishing techniques such as spears and various kinds of wounding or striking gear, cover pots, and scoop baskets. In addition, stirring up the mud to deoxygenate the water or adding ichthyotoxic plants to stun the fish can be effective in these isolated waters. Both in the floodplain and in the main river, hooks can be used as well as nets. Today harpoons are mainly used in shallow

TABLE 12.1 CONTINUED.

	Unit C-6			Unit C-8	Unit 1-S		Unit 2-S			Unit 3-S	Unit B-2
Taxon	II	IIIA	IIIB	IIIA	IB	Mixed IB, IV and V	IB	II	Mixed II and V	V	V
Protopterus annectens	—	—	1	—	—	—	—	—	—	—	—
Polypterus sp.	—	—	5	—	1	—	2	—	—	2	2
Heterotis niloticus	2	—	9	—	—	2	3	3	2	1	11
Gymnarchus niloticus	—	3	4	—	3	2	—	—	—	4	—
Mormyridae	—	—	—	—	—	—	—	—	—	—	—
Cyprinidae (cf. *Barbus*)	—	—	—	—	—	—	—	—	—	—	—
Cyprinidae (cf. *Labeo*)	—	—	—	—	—	—	—	—	1	—	—
Citharinus sp.	2	—	—	—	2	2	—	—	—	3	—
Distichodus sp.	—	—	1	—	—	—	—	2	—	1	1
Citharinus/Distichodus	—	—	1	—	1	—	—	—	—	—	—
Hydrocynus sp.	—	—	—	—	—	2	1	—	—	—	—
Alestes/Brycinus	—	—	—		—	—	—	—	—	—	—
Bagrus sp.	3	—	1-	—	2	2	2	1	—	2	—
Clarotes laticeps	—	—	1	—	—	1	2	—	—	—	—
Chrysichthys sp.	—	—	—	—	—	—	—	1	—	—	—
Auchenoglanis sp.	3	—	5	1	2	6	5	8	2	8	—
Synodontis sp.	9	2	24	9	9	3	5	4	18	16	2
Clariidae	72	12	96	9	63	46	75	42	36	25	18
Tilapiini	5	—	6	1	—	1	1	5	5	2	—
Lates niloticus	17	4	19	2	46	18	66	25	16	10	17
Parachanna sp.	1	—	—	—	—	—	—	—	—	—	—
Tetraodon lineatus	—	—	—	—	—	—	—	—	—	—	—
Total identified fish	114	21	182	22	129	85	162	91	80	76	51
Total unidentified fish	40	14	58	14	35	21	52	17	13	26	16

water for the capture of breeding fish such as tilapia (Tilapiini), African bonytongue (*Heterotis niloticus*), aba (*Gymnarchus niloticus*), and large air-breathing catfish (*Heterobranchus*) (Reizer 1988:233).

Obviously, of all these methods, only a few leave archaeological traces. Iron hooks and ceramic netweights have been found at the Middle Senegal Valley sites (see Chapter 7). An iron fish hook was found in a Phase IIIA level of unit C-1 and two possible fish hooks occur in unit C-3 in Phase IIIA levels. Other recovered iron objects could have been used as fishing gear, although other functions are not excluded: several spears or arrowheads occur in units 2-S, 3-S, C-3, and C-6. Netweights have been found in units 1-S (Phase IB), 2-S (Phase IB), 3-S (Phase V), C-3 (Phases IA, IB, and II), and C-6 (Phases II and IIIA). They therefore occur in all phases for which fish remains are available. There is a remarkable concentration of these objects in unit C-3A level 42 and in unit C-3B level 34, but fish remains in those and adjacent levels are rare. We can make no inferences of spatial or functional differentiation from the comparison of archaeological and faunal data.

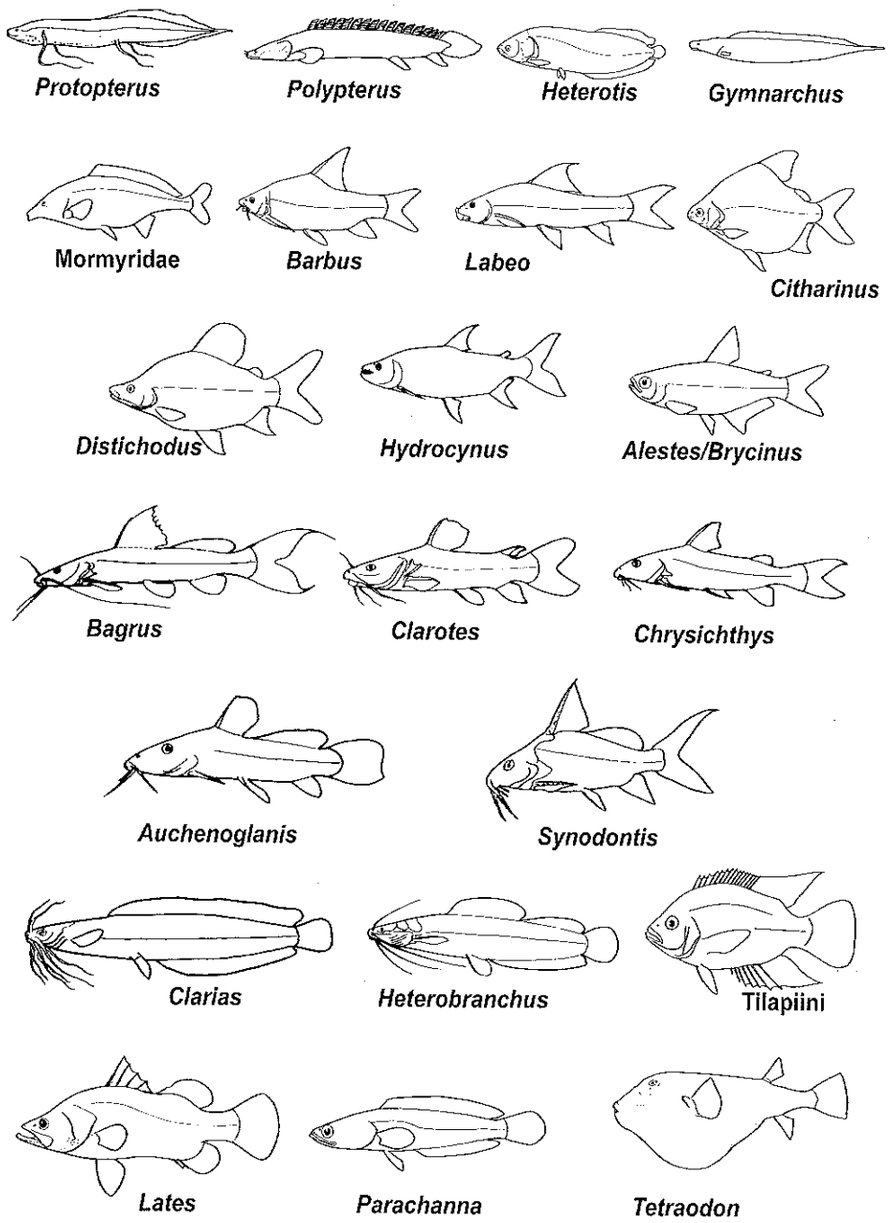

FIGURE 12.1. Fish taxa identified from remains recovered from Middle Senegal Valley excavations.

TABLE 12.2. Proportion of marsh fishes, floodplain dwellers, and open water species grouped by ceramic phase within each excavation unit at the Cubalel and Siwré sites.

	Unit B-2	Unit C-1		Unit C-2	Unit C-3					Unit C-6			Unit C-8	Unit 1-S	Unit 2-S		Unit 3-S
Taxon	V	II	IIIA	IIIA	IA	IB	II	IIIA	IIIB	II	IIIA	IIIB	IIIA	IB	IB	II	V
Number of remains	50	262	424	243	20	9	342	168	320	112	21	179	22	126	160	88	70
Marsh species																	
Polypterus sp.	4	0	1.7	0.4	0	0	0.3	1.2	1.6	0	0	2.8	0	0.8	1.3	0	2.9
Heterotis niloticus	22	0.8	1.2	4.5	5	0	1.2	1.2	1.3	1.8	0	5	0	0	1.9	3.4	1.4
Gymnarchus niloticus	0	0	0.2	0.4	15	0	1.2	1.8	0.9	0	14.3	2.2	0	2.4	0	0	5.7
Parachanna sp.	0	0	0	0	0	0	0	0.6	0	0.9	0	0	0	0	0	0	0
Total	26	0.8	3.1	5.3	20	0	2.6	4.8	3.8	2.7	14.3	10.1	0	3.2	3.1	3.4	10
Floodplain species																	
Protopterus annectens	0	0	0	0.4	0	0	0	0	0	0	0	0.6	0	0	0	0	0
Cyprinidae (cf. *Barbus*)	0	0	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cyprinidae (cf. *Labeo*)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Clariidae	36	83.6	59.2	37.4	30	66.7	56.4	71.4	55.9	64.3	57.1	53.6	40.9	50	46.9	47.7	35.7
Tilapiini	0	1.1	9.2	9.1	5	0	1.8	6	4.7	4.5	0	3.4	4.5	0	0.6	5.7	2.9
Total	36	84.7	68.9	46.9	35	66.7	58.2	77.4	60.6	68.8	57.1	57.5	45.5	50	47.5	53.4	38.6
Open water species																	
Hydrocynus sp.	0	0.4	0	0.8	0	0	0	1.2	0	0	0	0	0	0	0.6	0	0
Bagrus sp.	0	1.5	1.7	1.2	5	0	3.8	3	2.2	2.7	0	5.6	0	1.6	1.3	1.1	2.9
Auchenoglanis sp.	0	1.1	0.7	7	5	0	3.2	0.6	4.1	2.7	0	2.8	4.5	1.6	3.1	9.1	11.4
Synodontis sp.	4	3.1	13.2	23.8	0	22.2	4.1	4.2	7.5	8	9.5	13.4	40.9	7.1	3.1	4.5	22.9
Lates niloticus	34	8.4	12.5	15.6	35	11.1	28.1	8.9	21.9	15.2	19	10.6	9.1	36.5	41.3	28.4	14.3
Total	38	14.5	28.1	48.4	45	33.3	39.2	17.9	35.6	28.6	28.6	32.4	54.5	46.8	49.4	43.2	51.4

Conclusions

No clear diachronic patterning emerges from the fish data from the Cubalel and Siwré mound sites. Nor are there significant differences in species composition within or between mounds that would suggest shifts in procurement strategies. A size decrease at the transition from ceramic Phase II to III has been noted, possibly indicating overfishing that made larger individuals scarcer through time (Van Neer 2008). As a general conclusion, it seems that the observed intrasite and intersite differences in species diversity may be rather related to variations in the availability of the fish, which in turn are linked to environmental factors.

TABLE G.5. Identified fish remains from C-1 mound, Phases II and IIIA, by level (L).

	Phase IIIA																	Phase II				
Taxon	**L.1**	**L.2**	**L.3**	**L.4**	**L.5**	**L.6**	**L.7**	**L.8**	**L.9**	**L.10**	**L.11**	**L.12**	**L.14**	**L.15**	**L.16**	**L.17**	**L.18**	**L.19**	**L.20**	**L.22**	**L.23**	**L.24**	**L.25**
Polypterus sp.				5	2																		
Heterotis niloticus	1		1	2												1			1				1
Gymnarchus niloticus	1																						
Mormyridae						1																	
Cyprinidae (cf. *Barbus*)															2								
Citharinus sp.				1								1			1	2			1				
Distichodus sp.								1							1								
Citharinus/ Distichodus sp.	1				3	1			1		1	3			2	1							
Hydrocynus sp.																			1				
Bagrus sp.	2	1			1							1			1		1		4				
Clarotes laticeps																			1				
Auchenoglanis sp.		1										1					1		3				
Synodontis sp.	6	1		17	13			1	1		2	2	3	1	1	5	3		7			1	
Clariidae	56	18	2	70	10	1	1	4	2	1	7	3	2		15	6	40	13	219				
Tilapiini	8	4		3	5			2				3			8	4	2		3				
Lates niloticus	8	7		4	3			3	3	1	1	1	1		12	4	5		22				
Total identified fishes	83	32	3	102	37	3	1	11	7	2	11	15	6	1	43	23	52	13	262	0	0	1	1
Unidentified fishes	44	21	1	15	4	0	0	4	1	0	11	19	10	0	26	8	14	5	49	1	1	0	0

TABLE G.6. Identified fish remains from C-2 mound, Phase IIIA, by level (L) and feature (F).

	Phase IIIA										
Taxon	**L.1**	**L.2**	**L.3**	**L.4**	**F.6**	**L.5**	**L.6**	**L.7**	**L.8**	**L.9**	**L.10**	**L.11**
Protopterus annectens												1
Polypterus sp.	1											
Heterotis niloticus	1	8		1				1				
Gymnarchus niloticus	1											
Citharinus sp.			3				1					
Hydrocynus sp.		2										
Bagrus sp.	1	2										
Clarotes laticeps		1										
Chrysichthys sp.					1							
Auchenoglanis sp.	3	12		1			1					
Synodontis sp.	9	44	1					2				1
Clariidae	17	29	5	2	5	5	11	4	4	5	1	2
Tilapiini	4	9	3	1			1		2	2		
Lates niloticus	4	13	5	4	3	2	1	2	1		1	2
Tetraodon lineatus		1										
Total identified fishes	41	121	17	9	9	7	16	7	9	7	2	5
Unidentified fishes	19	73	14	20	11	8	4	3	4	4	1	0

TABLE G.7. Identified fish remains from C-3 mound, unit C-3A, Phases IIIA and IIIB, by level (L) and feature (F).

	Phase IIIB											Phase IIIA										
Taxon	L.1	L.2	F.7	L.3	L.4	F.14	L.6	L.7	L.8	L.9	L.10	L.11	L.15	L.16	L.17	L.18	F.22	L.22	L.23	L.24	L.25	L.26
Polypterus sp.	1			1																		
Heterotis niloticus						1				1												
Gymnarchus niloticus																		1		1		
Citharinus/Distichodus sp.	1	1																				
Bagrus sp.								1	1			1										
Clarotes laticeps																						1
Auchenoglanis sp.	3								2										1			
Synodontis sp.			1			3		1	2	2	1				1							1
Clariidae	8	1	2	4	4	7	1	8	13	3	3	3	1	1	1	2				1	1	17
Tilapiini	1		2												5							2
Lates niloticus	6	1	1		1	3	1	2	7			1					1				2	
Tetraodon lineatus							1															
Total identified fishes	20	3	6	5	5	14	3	12	25	6	4	5	1	1	7	2	1	1	1	2	3	21
Unidentified fishes	16	0	0	1	2	13	4	6	5	4	0	0	0	0	1	0	0	0	0	0	1	6

TABLE G.8. Identified fish remains from C-3 mound, unit C-3B, Phases I and II, by level (L) and feature (F).

	Phase II																Phase I				
Taxon	L.27	L.28	L.29	L.30	L.31	L.32	L.33	L.34	F.58	L.35	L.36	F.63	F.64	L.37	L.38	L.39	L.40	L.41	F.74	F.76	L.42
Polypterus sp.		1																			
Heterotis niloticus		2						1													
Gymnarchus niloticus				1																	
Citharinus sp.	1							1		1											
Distichodus sp.								1													
Citharinus/Distichodus sp.	1										1										
Alestes/Brycinus sp.		1																			
Bagrus sp.		1	1					1		1	4			2							
Auchenoglanis sp.		1		1			1	1			3										1
Synodontis sp.	2							2		5	2										
Clariidae	9	12	4	3	1	1	2	33		20	31			2			2		1	1	
Tilapiini	1	1								1	1										
Lates niloticus	2	6	2	1	2	2	2	17	1	9	3	2	2	7	1	1		1		1	1
Tetraodon lineatus								1													
Total identified fishes	16	25	7	6	3	3	5	58	1	37	45	2	2	11	1	1	2	1	1	2	2
Unidentified fishes	8	11	0	1	0	0	4	22	0	8	13	1	0	0	0	0	0	0	0	0	1

TABLE G.9. Identified fish remains from mound C-3, unit C-3B, Phase IIIA and IIIB, by level (L) and feature (F).

	Phase IIIB									Phase IIIA										
Taxon	L.1	L.2	L.3	L.4	L.5	L.6/8	L.7	L.9	L.10	L.11	L.12	L.13	L.14	L.15	F.20	L.16	L.17	L.18	L.19	L.20
Polypterus sp.	2					1						1							1	
Heterotis niloticus	2																	1		1
Gymnarchus niloticus		1	1			1											1			
Citharinus sp.			1										1							
Citharinus/Distichodus sp.			2		1			1												
Hydrocynus sp.																			1	1
Bagrus sp.	1	1	1		1			1									2			2
Clarotes laticeps	1																			
Auchenoglanis sp.	1	1	1		1	3			1											
Synodontis sp.	5	2	4		1	1	1					2	1		1					1
Clariidae	24	29	33	1	13	8	3	6	8	2	4	9	2	4		6	6	6	36	18
Tilapiini	1	2	7		2							1	1						1	
Lates niloticus	2	6	19		7	3		4	7	2		1	1	1		1			3	2
Parachanna sp.																		1		
Total identified fishes	39	42	69	1	26	17	4	12	16	4	4	14	6	5	1	7	9	8	42	25
Unidentified fishes	8	7	22	0	5	2	0	1	2	0	1	4	0	0	0	2	1	4	10	2

TABLE G.10. Identified fish remains from C-3 mound, unit C-3A, Phases I and II, by level (L) and feature (F).

	Phase II											Phase I			
Taxon	L.21	L.22	L.23	F.53	L.24	L.25	L.26	L.27	L.28	L.30	L.31	L.32	L.33	F.68	L.34	L.35
Heterotis niloticus		1														1
Gymnarchus niloticus	1					2										3
Citharinus/Distichodus sp.							1									
Bagrus sp.		1			1		1									1
Clarotes laticeps							1							1		1
Auchenoglanis sp.		1				1	1				1					
Synodontis sp.	1						1		1					2		
Clariidae	15	10	2	2		22	19	1	2		2			4	1	3
Tilapiini		1				1										1
Lates niloticus	2	3			2	6	18	3		1		1	1		1	3
Total identified fishes	19	17	2	2	3	32	42	4	3	1	3	1	1	7	2	13
Unidentified fishes	0	2	2	0	1	4	15	3	9	0	0	0	0	0	0	0

TABLE G.11. Identified fish remains from C-6 mound, Phases II, IIIA, and IIIB, by level (L).

	Phase II															
Taxon	L.18	L.19	L.20	L.21	L.22	L.23	L.24	L.25	L.26	L.27	L.29	L.30	L.31	L.32	L.33	L.34
Protopterus annectens																
Polypterus sp.																
Heterotis niloticus		1					1									
Gymnarchus niloticus																
Citharinus sp.												1				1
Distichodus sp.																
Citharinus/ Distichodus sp.																
Bagrus sp.			1			1								1		
Clarotes laticeps																
Auchenoglanis sp.			1							2						
Synodontis sp.		1	1		1			1		1				4		
Clariidae	2	1	22	17	2	8	3	1	4			2	1	9		
Tilapiini						1		1						2	1	
Lates niloticus		1	5	1			1	1			2	2		1		3
Parachanna sp.										1						
Total identified fishes	2	4	30	18	3	10	5	4	4	4	2	5	1	17	1	4
Unidentified fishes	10	2	3	1	1	1	1	1	1	3	1	3	0	8	0	4

Continued

TABLE G.11 CONTINUED.

	Phase IIIB												Phase IIIA		
Taxon	L.1	L.2	L.3	L.4	L.6	L.7	L.8	L.9	L.10	L.11	L.12	L.13	L.15	L.16	L.17
Protopterus annectens						1									
Polypterus sp.						1		2	2						
Heterotis niloticus		4				2			1	2					
Gymnarchus niloticus								1	2	1				3	
Citharinus sp.															
Distichodus sp.			1												
Citharinus/ Distichodus sp.		1													
Bagrus sp.	1	5						2	1	1					
Clarotes laticeps								1							
Auchenoglanis sp.					2					1		2			
Synodontis sp.			2		1	3	2	2	4	4	1	5	1	1	
Clariidae	1	10	3		8	3		14	10	26	1	20	5	6	1
Tilapiini				1		1	1	1				2			
Lates niloticus		1		1	2	3		8	1	3			1	3	
Parachanna sp.															
Total identified fishes	2	21	6	2	13	14	3	31	21	38	2	29	7	13	1
Unidentified fishes	1	4	3	2	8	9	0	10	8	4	3	6	9	4	1

TABLE G.12. Identified fish remains from the C-8 *plage* site, Phase IIIA, by level (L).

	Phase IIIA		
Taxon	L.1	L.2	L.4
Auchenoglanis sp.	1		
Synodontis sp.	7	1	1
Clariidae	5	4	
Tilapiini	1		
Lates niloticus	1	1	
Total identified fishes	15	6	1
Unidentified fishes	11	2	1

TABLE G.13. Identified fish remains from Siwré S-1 mound, unit 1-S, mixed Phases IV and V, by level (L).

	Mixed Phases IV and V														
Taxon	**L.1**	**L.2**	**L.4**	**L.5**	**L.6**	**L.7**	**L.8**	**L.9**	**L.10**	**L.11**	**L.12**	**L.13**	**L.14**	**L.15**
Heterotis niloticus												1	1	
Gymnarchus niloticus									2					
Citharinus sp.	1		1											
Hydrocynus sp.								1		1				
Bagrus sp.										2				
Clarotes laticeps												1		
Auchenoglanis sp.	1						2			2				1
Synodontis sp.								1		2				
Clariidae	7	2	3			2	5		1	1	14	1	4	1	5
Tilapiini														1	
Lates niloticus	1	1	2	1	2					2	7		1	1	
Total identified fishes	10	3	5	2	4	7	1	2	5	28	1	5	5	7
Unidentifiect fishes	5	0	0	0	0	4	1	1	0	6	0	2	0	2

TABLE G.14. Identified fish remains from Siwré S-1 mound, unit 1-S, Phase IB, by level (L).

	Phase IB																		
Taxon	**L.16**	**L.17**	**L.18**	**L.19**	**L.20**	**L.21**	**L.22**	**L.23**	**L.24**	**L.25**	**L.26**	**L.27**	**L.28**	**L.29**	**L.30**	**L.31**	**L.32**
Polypterus sp.													1				
Gymnarchus niloticus													1	2			
Citharinus sp.						1										1	
Citharinus/ Distichodus							1										
Bagrus sp.	2																
Auchenoglanis sp.												2					
Synodontis sp.				3	2		1		1	3	3			2		1	
Clariidae	4	5	4	7	6	6	3	1	3	1	3	3	15		1		1
Lates niloticus	3	2	2	1	1	2	1	6	4	3	1	4	7	7	1	1	
Total identified fishes	7	7	8	8	10	11	4	9	7	4	4	7	25	10	5	1	2
Unidentified fishes	2	6	2	1	4	5	0	2	3	1	1	0	6	0	2	0	0

TABLE G.15. Identified fish from Siwré S-1 mound, unit 2-S, Phases IB, II, and V, by level (L) and feature (F).

	Phase V						Phase II					Phase IB								
Taxon	**L.1**	**L.2**	**L.3**	**L.4**	**L.5**	**L.6**	**L.7**	**F.86**	**L.8**	**L.9**	**L.10**	**L.11**	**L.12**	**L.14**	**L.16**	**L.17**	**L.18**	**F.101**	**L.19**	**L.20**
Polypterus sp.															2					
Heterotis niloticus	2							1	2					1		1				1
Cyprinidae (cf. *Labeo*)						1														
Distichodus sp.									2											
Hydrocynus sp.																		1		
Bagrus sp.									1					1	1					
Clarotes laticeps														1		1				
Chrysichthys sp.											1									
Auchenoglanis sp.	1				1			5	2		1				1	2				2
Synodontis sp.	2	1	3	1	9	2			4						3		1			1
Clariidae	12		10		4	10	1	11	15		4	11	11	6	35	4	5	8	1	5
Tilapiini	2				2	1			4	1							1			
Lates niloticus	1	1	7		3	4	1	8	13	2	1			3	17	14	7	3	3	19
Total identified fishes	20	2	20	1	19	18	2	25	43	3	7	11	11	12	59	22	14	12	4	28
Unidentified fishes	6	0	0	0	7	0	0	12	5	0	0	0	0	7	14	5	2	2	4	18

TABLE G.16. Identified fish remains from Siwré S-1 mound, unit 3-S, Phases II and V, by level (L).

	Phase V		Phase II	
Taxon	L.1	L.2	L.5	L.7
Polypterus sp.		2		
Heterotis niloticus		1		
Gymnarchus niloticus		4		
Citharinus sp.	3			
Distichodus sp.		1		
Bagrus sp.	2			
Auchenoglanis sp.	3	5		
Synodontis sp.	11	5		
Clariidae	14	11	1	1
Tilapiini	1	1		
Lates niloticus	7	3		
Total identified fishes	41	33	1	1
Unidentified fishes	15	11	0	0

TABLE G.17. Identified fish remains from site B-2, Phase V, by level (L).

	Phase V	
Taxon	L.1	L.2
Polypterus sp.	2	
Heterotis niloticus	11	
Distichodus sp.	1	
Synodontis sp.	2	
Clariidae	16	2
Tilapiini		
Lates niloticus	17	
Total identified fishes	49	2
Unidentified fishes	16	0

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